

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Miloushev et al.
Application Number: 10/043,413
Filing Date: January 10, 2002
Title: **File Switch and Switched File System**

Group No.: 2142
Examiner: Pricto, Beatriz

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

NOTE: "An information disclosure statement shall be considered by the Office if filed by the applicant:
(1) Within three months of the filing date of a national application;
(2) Within three months of the date of entry of the national stage as set forth in section 1.491 in an international application; or
(3) Before the mailing date of a first Office action on the merits, whichever event occurs last." 37 C.F.R. section 1.97(b).

NOTE: "Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section." 37 C.F.R. section 1.56(a).
"Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:
(1) each inventor named in the application;
(2) each attorney or agent who prepares or prosecutes the application; and
(3) every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application." 37 C.F.R. section 1.56(c).

NOTE: The "duty as described in section 1.56 will be met so long as the information in question was cited by the Office or submitted to the Office in the manner prescribed by sections 1.97(b) - (d) and 1.98 before issuance of the patent." Notice of January 9, 1992, 1135 O.G. 13-25 at 17.

WARNING: "No information disclosure statement may be filed in a provisional application." 37 C.F.R. section 1.51(b).

List of Sections Forming Part of This Information Disclosure Statement

The following sections are being submitted for this Information Disclosure Statement:

(check sections forming a part of this statement; discard unused sections and number pages consecutively)

1. ☒ Preliminary Statements
2. ☒ Forms PTO/SB/08A and 08B (substitute for Form PTO-1449)
3. ☒ Statement as to Information Not Found in Patents or Publications
4. ☐ Identification of Prior Application in Which Listed Information Was Already Cited and for Which No Copies Are Submitted or Need Be Submitted
5. ☐ Cumulative Patents or Publications
6. ☒ Copies of Listed Information Items Accompanying This Statement
7. ☐ Concise Explanation of Non-English Language Listed Information Items
 - 7A. ☐ EPO Search Report
 - 7B. ☐ English Language Version of EPO Search Report
8. ☐ Translation(s) of Non-English Language Documents
9. ☒ Concise Explanation of English Language Listed Information Items (Optional)
10. ☒ Identification of Person(s) Making This Information Disclosure Statement

(complete the following, if appropriate)

Sections _____, respectively, have been continued on ADDED PAGE(S).

NOTE : "Once the minimum requirements are met, the examiner has an obligation to consider the information." Notice of April 20, 1992 (1138 O.G. 37-41, 37).

Section 1. Preliminary statements

Applicants submit herewith patents, publications or other information, of which they are aware that they believe may be material to the examination of this application, and in respect of which, there may be a duty to disclose.

The filing of this information disclosure statement shall not be construed as a representation that a search has been made (37 C.F.R. section 1.97(g)), an admission that the information cited is, or is considered to be, material to patentability, or that no other material information exists.

The filing of this information disclosure statement shall not be construed as an admission against interest in any manner. Notice of January 9, 1992, 1135 O.G. 13-25, at 25.

SECTION 2: FORMS PTO/SB/08A and 08B (formerly Form PTO-1449)

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Title: File Switch and Switched File System

LIST OF PATENTS AND PUBLICATIONS FOR
APPLICANT'S INFORMATION DISCLOSURE STATEMENT

U.S. Patent Documents

Examiner Initials	Highlight	Ref Num.	Patent	Issue Date	Inventor	Class/ Subclass
		AA	6029168	02/22/00	Frey	707/10
		AB	5897638	04/27/99	Lasser, <i>et al.</i>	707/102
		AC	5917998	06/29/99	Cabrera, <i>et al.</i>	711/114
			5583995	12/10/96	Gardner	348/7
			5473362	12/5/95	Fitzgerald	348/7
			6775679	08/10/04	Gupta, U Day	707/102
			4993030	02/12/91	Krakauer	371/401
	*		6397246	05/28/02	Wolfe, Daniel	709/217
			6047129	04/4/00	Frye, Russell	395/712
	*		6985936	01/10/06	Agarwalla	709/221
			6044367	03/28/00	Wolff, James	707/2
	*		5649200	07/15/97	Leblang, <i>et al</i>	395/703
			6516351	02/4/03	Borr, Andrea	709/229
			6393581	05/21/02	Friedman, <i>et al</i>	714/4
			6223206	04/21/01	Dan, <i>et al.</i>	709/105
			6161145	12/12/00	Bainbridge, <i>et al.</i>	709/246
			6339785	01/15/02	Feigenbaum, Idan	709/213
			6324581	11/27/01	Xu, <i>et al.</i>	709/229
			6438595	08/20/02	Blumenau, <i>et al.</i>	709/226
			6721794	04/13/04	Taylor	709/231
			6516350	02/14/03	Lumelsky	709/226
	*		5548724	08/20/96	Akizawa <i>et al.</i>	395/200.03
	*		6782450	08/24/04	Arnott <i>et al.</i>	711/114
	*		7072917	07/4/06	Wong <i>et al.</i>	707/205
			6233648	05/2001	Tomita, Haruo	711/4
			6556998	04/2003	Mukherjee et al.	707/10
			6985956	01/2006	Luke et al.	709/229
			6990547	01/2006	Ulrich et al.	710/304
			6990667	01/2006	Ulrich et al.	718/105

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U.S. Published Patent Applications

Examiner Initials	Highlight	Ref. Num	Patent	Issue Date	Inventor	Class/ Subclass
			2004/0025013	02/5/04	Parker, <i>et al.</i>	713/163
	*		2005/0021615	01/27/05	Arnott, <i>et al.</i>	709/203
	*		2004/0028043	02/12/04	Maveli, <i>et al.</i>	370/392
	*		2004/0030857	02/12/04	Krakirian, <i>et al.</i>	711/206
	*		2004/0028063	02/12/04	Roy, <i>et al.</i>	370/402
			2002/0120763	08/2002	Miloushev <i>et al.</i>	709/230
			2002/0161911	10/2002	Pinckney <i>et al.</i>	709/231
			2003/0028514	02/2003	Lord <i>et al.</i>	707/1
			2003/0033308	02/2003	Patel <i>et al.</i>	707/10
			2003/0135514	07/2003	Patel <i>et al.</i>	707/102
			2004/0006575	01/2004	Visharam <i>et al.</i>	707/104.1
			2004/0098383	05/2004	Tabellion <i>et al.</i>	707/003
			2004/0133607	07/2004	Miloushev <i>et al.</i>	707/200
			2004/0133577	07/2004	Miloushev <i>et al.</i>	707/010
			2004/0236798	11/2004	Srinivasan <i>et al.</i>	707/200

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Non-Patent Documents

Examiner Initials	Highlight	Ref. Num.	Author, Title of Article, Title of Journal, Volume Number, Page Numbers, Date
		AG	Callaghan <i>et al.</i> , "NFS Version 3 Protocol Specifications" (RFC 1813), 1995, The Internet Engineering Task Force (IETF), www.ietf.org , last accessed on 12/30/02.
		AH	Norton <i>et al.</i> , "CIFS Protocol Version CIFS-Spec 0.9", 2001, Storage Networking Industry Association (SNIA), www.snia.org , last accessed on 3/26/01.
		AI	Stakutis, C., "Benefits of SAN-based file system sharing", Jul. 2000, InfoStor, www.infostor.com last accessed on 12/30/02.
		AJ	Haskin <i>et al.</i> , "The Tiger Shark File System", 1996, in proceedings of IEEE, Spring COMPCON, Santa Clara, CA, www.research.ibm.com , last accessed on 12/30/02.
		AK	Peterson, M., "Introducing Storage Area Networks", Feb 1998, InfoStor, www.infostor.com , last accessed on 12/20/02.
		AL	Patterson <i>et al.</i> , "A case for redundant arrays of inexpensive disks (RAID)", Chicago, Illinois, June 1-3, 1998, in proceedings of ACM SIGMOD conference on the Management of Data, pp.109-116, Association for Computing Machinery, Inc., www.acm.org , last accessed on 12/20/02.
		AM	Farley, M., "Building Storage Networks", January 2000, McGraw Hill, ISBN 0072120509.
		AN	"Auspex Storage Architecture Guide", Second Edition, 2001, Auspex Systems, Inc., www.auspex.com , last accessed on 12/30/02.
		AO	"Windows Clustering Technologies-An Overview", November 2000, Microsoft Corp., www.microsoft.com , last accessed on 12/30/02.
		AP	Steven Soltis, et al., "The Global File System", in Proceedings of the Fifth NASA Goddard Space Flight Center Conference on Mass Storage Systems and Technologies, September 17-19, 1996, College Park, Maryland.
		AQ	Preslan <i>et al.</i> , "Scalability and Failure Recovery in a Linux Cluster File System", in Proceedings of the 4 th Annual Linux Showcase & Conference, Atlanta, Georgia, October 10-14, 2000, www.usenix.org , last accessed on 12/20/02.
		AR	Zayas, E., "AFS-3 Programmer's Reference: Architectural Overview", Transarc Corp., version 1.0 of September 2, 1991, doc.. number FS-00-D160.

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Non-Patent Documents (Continued)

Examiner Initials	Highlight	Ref. Num.	Author, Title of Article, Title of Journal, Volume Number, Page Numbers, Date
		AS	"The AFS File System in Distributed Computing Environment", Mar 1996, Transarc Corp. www.transarc.ibm.com , last accessed on 12/20/02.
		AT	"VERITAS SANPoint Foundation Suite(tm) and SANPoint Foundation(tm) Suite HA: New VERITAS Volume Management and File System Technology for Cluster Environments", September 2001, VERITAS Software Corp.
		AU	"Distributed File System: Logical View of Physical Storage: White Paper", 1999, Microsoft Corp., www.microsoft.com , last accessed on 12/20/02.
		AV	Anderson <i>et al.</i> , "Serverless Network File System", in the 15 th Symposium on Operating Systems Principles, December 1995, Association for Computing Machinery, Inc.
		AW	Gibson <i>et al.</i> , "NASD Scalable Storage Systems", June 1999, USENIX99, Extreme Linux Workshop, Monterey, California.
		AX	Gibson <i>et al.</i> , "File Server Scaling with Network-Attached Secure Disks", in Proceedings of the ACM International Conference on Measurement and Modeling of Computer Systems (Sigmetrics '97), 1997, Association for Computing Machinery, Inc.
		AY	Cabrera <i>et al.</i> , "Swift: Storage Architecture for Large Objects", In Proceedings of the Eleventh IEEE Symposium on Mass Storage Systems, pages 123-128, Oct 1991.
		BA	Cabrera <i>et al.</i> , "Using Data Striping in a Local Area Network", 1992, technical report number UCSC-CRI-92-09 of the Computer & Information Sciences Department of University of California at Santa Cruz.
		BB	Long <i>et al.</i> , "Swift/RAID: A distributed RAID System", Computing Systems, vol. 7, pp. 333-359, Summer 1994.
	*	BC	Hartman, J., "The Zebra Striped Network File System", 1994, Ph.D. dissertation submitted in the Graduate Division of the University of California Berkeley.
		BD	Carns <i>et al.</i> , "PVFS: A Parallel File System For Linux Clusters", in Proceedings of the 4 th Annual Linux Showcase and Conference, pages 317-327, Atlanta, Georgia, October 2000, USENIX Association.
	*	BF	"NERSC Tutorials: I/O on the Cray T3E", chapter 8, "Disk Striping", National Energy Research Scientific Computing Center (NERSC), http://hpcf.nersc.gov , last accessed on 12/27/02.

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Non-Patent Documents (Continued)

Examiner Initials	Highlight	Ref. Num.	Author, Title of Article, Title of Journal, Volume Number, Page Numbers, Date
		BH	Thekkath <i>et al.</i> , 'Frangipani: A Scalable Distributed File System', in Proceedings of the 16 th ACM Symposium on Operating Systems Principles, October 1997, Association for Computing Machinery, Inc.
		BI	Hwang <i>et al.</i> , Designing SSI Clusters with Hierarchical Checkpointing and Single I/O Space", IEEE Concurrency, pp. 60-69, Jan-Mar 1999.
			Cavale, M. R., "Introducing Microsoft Cluster Service (MSCS) in the Windows Server 2003," Microsoft Corporation, November 2002.
			Pearson, P.K., "Fast Hashing of Variable-Length Text Strings", Comm. Of the ACM, Vol. 33, No. 6, June 1990.
			Sorenson, K.M., "Installation and Administration: Kimberlite Cluster Version 1.1.0, Rev. D." Mission Critical Linux, http://oss.missioncriticallinux.com/kimberlite/kimberlite.pdf
			Wilkes, J., et al., "The HP AutoRAID Hierarchical Storage System," ACM Transactions on Computer Systems, Vol. 14, No. 1, February 1996.
			Savage, et al., "AFRAID- A Frequently Redundant Array of Inexpensive Disks," 1996 USENIX Technical Conf., San Diego, California, January 22-26, 1996.

Examiner: _____

Date Considered: _____

NOTE FOR EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance AND not considered. Include copy of this form with next communication to applicant.

Section 3. Statement as to Information Not Found in Patents or Publications (Information Not Listed in Forms PTO/SB/08A and 08B (substitute for Form PTO-1449))

The following patent applications may include technically-related subject matter and/or claims that are similar to this application:

Appl. No.	File Date	Title/Description	Inventors
10/043,413	1/10/2002	File Switch and Switched File System	Vladimir Miloushev, Peter Nickolov
10/336,704	1/2/2003	Transaction Aggregation in a Switched File System	Vladimir Miloushev, Peter Nickolov
10/336,833	1/2/2003	Directory Aggregation for Files Distributed Over a Plurality of Servers in a Switched File System	Vladimir Miloushev, Peter Nickolov
10/336,835	1/2/2003	Metadata Based File Switch and Switched File System	Vladimir Miloushev, Peter Nickolov
10/336,832	1/2/2003	Rule Based Aggregation of Files and Transactions in a Switched File System	Vladimir Miloushev, Peter Nickolov
10/336,834	1/2/2003	Aggregated Lock Management for Locking Aggregate Files in a Switched File System	Vladimir Miloushev, Peter Nickolov
10/336,784	1/2/2003	Aggregated Opportunistic Lock and Aggregated Implicit Lock Management for Locking Aggregated Files in a Switched File System	Vladimir Miloushev, Peter Nickolov
11/337,190	1/20/2006	Scalable System for Partitioning and Accessing Metadata Over Multiple Servers	Francesco Lacapra
11/041,147	1/21/2005	File-based Hybrid File Storage Scheme Supporting Multiple File Switches	Francesco Lacapra
11/072,892	3/3/2005	System and Method for Managing Small-Size Files in an Aggregated File System	Francesco Lacapra, Srinivas Duvvuri
11/285,677	11/21/2005	Directory Aggregation for Files Distributed Over a Plurality of Servers in a Switched File System	Vladimir Miloushev, Peter Nickolov
11/724,107	3/14/2007	Transaction aggregation in a switched file system	Vladimir Miloushev, Peter Nickolov

The Examiner is requested to review the entire file histories of these applications, including cited references, Office Actions, Responses, etc., and is asked to contact Applicant's Attorney if the Examiner would like the Applicant to supply copies of any or all of the information included in any of these applications. For any of these applications, if Applicant's Attorney is not contacted by the Examiner with such a request, then it will be assumed that the Examiner has reviewed or will review the file content of the application. The identification of the above-identified applications is not a waiver of secrecy for any of the applications.

Section 6. Copies of Listed Information Items Accompanying This Statement

NOTE: 37 C.F.R. section 1.98(a)(2) requires that any information disclosure statement filed under section 1.97 shall include: "A legible copy of: (i) Each U.S. and foreign patent; (ii) Each publication or that portion which caused it to be listed; and (iii) All other information or that portion which caused it to be listed, except that no copy of a U.S. patent application need be included . . ."

NOTE: The wording in section 1.98(a)(2)(iii) makes it clear that the requirement to submit a copy of each item of information listed in an information disclosure statement does not apply to the citation of a U.S. patent application. Notice of January 9, 1992, 1135 O.G. 13-25, at 14.

Legible copies of all items listed in Forms PTO/SB/08A and 08B (substitute for Form PTO-1449) accompany this information statement.

(complete the following, if applicable)

☒ Exception(s) to above:

U.S. patent citations are not included pursuant to the United State Patent and Trademarks Office's September 21, 2004 waiver of the copy requirement in 37 CFR 1.98 for cited pending U.S. patent citations when the patent citations are available in the USPTO's IFW system.

Copies of Non-Patent Documents submitted electronically on January 8, 2008, which are now part of the Image File Wrapper on PAIR.

☐ Items in prior application, from which an earlier filing date is claimed for this application, as identified in Section 4.

☐ Cumulative patents or publications identified in Section 5.

Section 9. Concise Explanation of English Language Listed Information Items

NOTE: "Applicants may, if they wish, provide a concise explanation of why English-language information is being submitted and how it is understood to be relevant. Concise explanations are helpful to the Office, particularly where documents are lengthy and complex and applicant is aware of a section that is highly relevant to patentability or where a large number of documents are submitted and applicant is aware that one or more are highly relevant to patentability." Notice of April 20, 1992 (1138 O.G. 37-47, 38).

Applicants appreciate that the disclosure of such a large number of references may be burdensome on the Examiner. Most of the references have been cited either by the USPTO or by the Applicants in one or more of the related applications listed in Section 3 above, and therefore the Examiner may find such references to be relevant to examination of the subject patent application. References that were not cited in one or more of those related applications are among those highlighted with an asterisk (*) next to the reference in the column labeled "Highlight." Applicants are not submitting these references in an attempt to prolong prosecution or hide information that may be material to patentability. Applicants' attorney has reviewed the references and believes that none is more relevant to the subject patent application than the references already of record. Nevertheless, Applicants request that the Examiner perform an independent review of the references. In an attempt to facilitate the Examiner's review of the references, Applicants' attorney would direct the Examiner's attention to the highlighted references, which, out of the cited references, appear to be more closely related to the subject patent application.

Submission of any particular reference is not an admission that the reference is material to patentability or qualifies as prior art to one or more of the claims.

Section 10. Identification of Person(s) Making This Information Disclosure Statement

The person making this certification is

(check each applicable item)

- (a) ☐ the inventor(s) who signs below

SIGNATURE OF INVENTOR

(type name of inventor who is signing)

- (b) ☐ an individual associated with the filing and prosecution of this application (37 C.F.R. section 1.56(c))

SIGNATURE OF INVENTOR

(type name of inventor who is signing)

- (c) ☒ the practitioner who signs below on the basis of the information:

(check each applicable item)

☐ supplied by the inventor(s).

☐ supplied by an individual associated with the filing and prosecution of this application. (37 C.F.R. section 1.56(c)).


☒ in the practitioner's file.

Reg. No.: 39,250

Tel. No.: (617) 443-9292

Customer No.: 02101

03193/00102 764435.1



SIGNATURE OF PRACTITIONER

Jeffrey T. Klayman

(type or print name of practitioner)

Bromberg & Sunstein LLP
125 Summer Street, 11th Floor

P.O. Address

Boston, MA 02110
